BOBBY JINDAL GOVERNOR



HAROLD LEGGETT, PH.D.
SECRETARY

State of Louisiana

DEPARTMENT OF ENVIRONMENTAL QUALITY ENVIRONMENTAL SERVICES

Certified Mail No.

Agency Interest (AI) No. 288 Activity No. PER20070014

Mr. Kelly B. Serio Vice President PO Box 271 Baton Rouge, LA 70821-0271

RE: Prevention of Significant Deterioration (PSD) Permit, PSD-LA-546 (M-2)

Formosa Plastics Corp Louisiana - Baton Rouge Plant

Formosa Plastics Corp, Baton Rouge, East Baton Rouge Parish, Louisiana

Dear Mr. Serio:

Enclosed is your permit, PSD-LA-546 (M2). Construction and operation of the proposed project is not allowed until such time as the corresponding Part 70 Operating Permit is issued.

Should you have any questions, contact Ms. Cathy E. Thompson of the Air Permits Division at (225) 219-0525.

Sincerely,

Cheryl Sonnier Nolan Assistant Secretary

Date

CSN:cet

c: US EPA Region VI

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Agency_Interest No. 288	
PSD-LA-546 (M-2)	
AUTHORIZATION TO CONSTRUCT AND OPERATE A MODIFIED MAJO PURSUANT TO THE PREVENTION OF SIGNIFICANT DETERIORA REGULATIONS IN LOUISIANA ENVIRONMENTAL REGULATORY LAC 33:III.509	TION
In accordance with the provisions of the Louisiana Environmental Regulatory 33:III.509,	Code, LAC
Formosa Plastics Corp PO Box 271 Baton Rouge, LA 70821-0271	` ·
is authorized to construct and operate a modernization to the polyvinyl chloride (PV at the Formosa Plastics Corp Louisiana - Baton Rouge Plant near	 C) plant
N end of Gulf States Rd Baton Rouge, LA 70805	!
subject to the emissions limitations, monitoring requirements, and other conditions hereinafter.	ions set forth
This permit and authorization to construct shall expire at midnight on unless physical on site construction has begun by such date, or binding agreements obligations to undertake a program of construction of the source are entered into by	, 2010, or contractual such date.

Cheryl Sonnier Nolan Assistant Secretary Office of Environmental Services Louisiana Department of Environmental Quality

Signed this ______, 2008.

BRIEFING SHEET.

Formosa Plastics Corp Louisiana Agency Interest No.: 288 Baton Rouge, East Baton Rouge Parish, Louisiana PSD-LA-546 (M-2)

PURPOSE

To obtain a PSD permit for a proposed PVC Unit modernization project at the Formosa Plastics Corporation Baton Rouge Facility.

RECOMMENDATION

Approval of the proposed construction and issuance of a permit.

REVIEWING AGENCY

Louisiana Department of Environmental Quality, Office of Environmental Services, Air Permits Division.

PROJECT DESCRIPTION

Formosa Plastics Corporation Baton Rouge Facility (hereinafter "FPC-LA") proposes to modernize it's PVC Unit. The modernization includes:

- modification of the existing reactors and ancillary equipment
- construction and installation of two new reactors;
- a slurry stripping column;
- a new PVC dryer;
- two chillers;
- ancillary equipment
- replacement of the existing PT-103 tank (Source ID T-103) with a larger tank
- addition of several insignificant activity tanks, and
- equipment associated with an automatic catalyst charging system

During the technical review of the Title V renewal application, the LDEQ requested additional information via letter dated June 4, 2007, from FPC-LA for a contemporaneous netting demonstration due to the close timing of construction of the PVC Unit modernization, installation of the Utilities Unit Package Boilers B1/B2 (approved in Title V Permit No. 2915-V0) and the Vinyl Chloride Monomer (VCM) Unit modernization project (approved in Title V Permit No. 0840-00002-V0).

As a result, New Source Review (NSR) analyses for the facility was updated as it was determined that the projects covered the same contemporaneous period. The net increase in PM/PM_{10} emissions for the projects demonstrated that the PM_{10} emissions are greater than the PSD significance threshold for PM/PM_{10} . Additionally, NSR analyses showed that the net VOC

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emission increases will be above the NNSR threshold, however, FPC-LA's VOC emission credits were used to offset project-related increases.

Estimated emissions, in tons per year, as a result of the project modifications are as follows:

	Baseline	Projected Actual	Contemporaneous	Net Emissions	PSD	Review
<u>Pollutant</u>	Actual Emissions	Emissions (PTE)	<u>Changes</u>	<u>Increase</u>	de minimis	required?
PM	58.86	86.08	9.29	36.53	[¦] 25	Y
PM_{10}	54.81	81.60	9.29	36.09	₁ 15	Y
SO ₂	0.06	0.57	-	0.51	40	-
NO_X	25.51	59.23	37.78	-4.06	[40	-
CO	0.59	34.44	-	33.85	100	-
VOC	26.05	88.96	4.04	66.95	40 ¹	(NNSR) Y

¹Per LAC 33:III.509.I.3, PSD requirements do not apply to nonattainment pollutants; Nonattainment New Source Review (NNSR) is applicable.

TYPE OF REVIEW

Particulate matter, PM/PM₁₀ emissions from the proposed modification will be above PSD significance levels. Therefore, the requested permit was reviewed in accordance with PSD regulations for PM/PM₁₀

The net emissions increases of volatile organic compounds (VOC) will be above the NNSR threshold. However, use of FPC-LA VOC emission credits for emissions offsetting was required to "net out" of NNSR and include VOC emission offsets. These emission offsets include the PVC methanol removal project in 1995, elimination of the marine/tank car loading project in 2002, and 3.07 credits remaining from the shutdown of VCM1 Unit in 2005.

BEST AVAILABLE CONTROL TECHNOLOGY

The BACT requirements are intended to ensure that a proposed facility will incorporate emission control systems that are consistent with those being utilized on similar projects throughout the United States. The top down approach used in this analysis involves determining the most stringent control available for a similar or identical emission source that can not be eliminated for any tehnical, environmental, economic, or safety reason.

Control of PM₁₀ emiss ions were analyzed using a "top down" approach. Good design and maintenance, good combustion practices, use of clean burning fuels, use of multicyclone/scrubbers, and baghouses were determined as BACT for PM₁₀. In addition, for some sources, indoor/partially enclosed operations, wet suppression/water wash down, daily inspection,

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cleaning, and covering of transport vehicles, were determined as BACT for PM₁₀.

AIR QUALITY IMPACT ANALYSIS

Prevention of Significant Deterioration regulations require an analysis of existing air quality for those pollutants which increase significantly from a proposed modification.

AERMOD, refined modeling and increment consumption analysis showed that PM₁₀ emissions from the plant will not cause or contribute to any NAAQS exceedances, of either the annual or 24 hour standards. The PSD increment is exceeded with FPC-LA contributions below the significance level.

ADDITIONAL IMPACTS

Soils, vegetation, and visibility will not be adversely impacted by the proposed modification, nor will any Class I area be affected. Secondary growth effects will be minimal; some temporary construction related jobs will result due to the project but no new permanent jobs will be created.

PROCESSING TIME

Application Dated:

July 16, 2007

Additional Information Received:

November 28, 2007

January 14, 2008

April 7, 2008

Effective Completeness Date:

April 7, 2008

PUBLIC NOTICE

A notice requesting public comment on the proposed project was published in *The Advocate*, Baton Rouge, Louisiana, on XXXX, 2008. Copies of the public notice were also mailed to individuals who have requested to be placed on the mailing list maintained by the Office of Environmental Services on XXXX, 2008. A proposed permit was also submitted to U.S. EPA Region VI on XXXX, 2008. All comments will be considered prior to a final permit decision.

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I. APPLICANT

Formosa Plastics Corp PO Box 271 Baton Rouge, LA 70821-0271

II. LOCATION

Formosa Plastics Corporation Louisiana (FPC) is located at Gulf States Road North, East Baton Rouge Parish, Baton Rouge, Louisiana. It is approximately 229 miles from Texas, 278 miles from Arkansas, 266 miles from Alabama, and 55 miles from Mississippi. The facility is located in a heavy industrial area on the east bank of the Mississippi River. It is bordered on the north, east, and south by other chemical/petrochemical and oil refining facilities. Approximate UTM coordinates are 674.00 kilometers East and 3375.00 kilometers North, Zone 15.

III. PROJECT DESCRIPTION

Formosa Plastics Corporation Baton Rouge Facility proposes to modernize the PVC Unit. The Baton Rouge Facility included five operating units: Polyvinyl Chloride (PVC), Utilities, Caustic Chlorine (CCN), Vinyl Chloride Monomer 1 (VCM 1), and Vinyl Chloride Monomer 2 (VCM 2). FPC is permanently shutting down the CCN Unit and VCM 1 Unit as part of the VCM modernization, therefore, these existing units will not be permitted and the VCM2 Unit is redesignated as the VCM Unit. The FPC Baton Rouge Facility consists of several units that generate power, steam, N₂/O₂, VCM, and PVC.

On July 29, 1988, Formosa Plastics Corporation received PSD-LA-546 to re-permit their old VCM previously scheduled for shutdown and to construct a new 1050 ton per day polyvinyl chloride plant. The pollutants of concern for PSD-LA-546 were VOC and PM₁₀. On November 17,1990, PSD-LA-546(M-1) was issued to allow an increase in the production capacity of the PVC plant from 1050 to 1200 tons per day; the pollutants of concern were VOC and PM₁₀. Additionally, an administrative amendment to PSD-LA-546(M-1) was approved on December 8, 2000 to remove the production limit specified in Specific Condition 2 after the company requested a PVC production increase from 1200 to 1400 tons per day; the pollutants of concern were VOC and PM₁₀. PSD-LA-546(M-2) encompasses and supersedes all previous PSD permits, including PSD-LA-546, PSD-LA-546(M-1), and PSD-LA-546(M-1) as amended December 8, 2000.

PVC Unit Modernization Project

The PVC Unit produces PVC using suspension polymerization. The plant currently produces more than six grades of suspension PVC and is able to manufacture up to three grades simultaneously. Polymerization occurs in batch reactors to convert the VCM charged in each batch to PVC in a

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water slurry. The unreacted VCM gas is recovered from the reactors for recycle. The PVC slurry is pumped to blowdown tanks, where additional unreacted VCM flashes overhead to be reclaimed by condensation. The blowdown tanks also serve as holding tanks for continuous feed of the slurry stripping columns.

Residual VCM is steam stripped from the PVC slurry in slurry stripping columns. Residual VCM is recovered from the equipment upstream of and including the slurry stripper. Condensed VCM is recycled to the process. Noncondensable gases are routed to the VCM Unit Incinerators (EIQ #231A, 231B, 231C in the VCM Unit Title V Permit).

The stripped PVC slurry is then pumped through heat exchangers to dryer feed holding tanks and centrifuges, where the slurry is dewatered and the PVC wet cake is produced. Water is pumped to the biotreatment plant (EIQ# 234 in VCM Unit Permit). PVC wet cake is dried in either cyclone or fluidized bed dryers. Air vented from the cyclone dryers is passed through a water scrubber and PVC resin is screened by sieves and pneumatically conveyed to storage silos for loading operations. Each silo vent is controlled with a bag or cartridge filter dust collector. Rail cars and trucks are used to deliver finished products to customers from the facility. Fugitive emissions from piping components and transfer equipment in the PVC Unit are included as part of the process.

In-process water from the PVC Unit is transported to a storage tank and is then steam stripped in the wastewater stripping columns. The stripped water is sent to the biotreatment plant to treat any remaining organic compounds. The emissions associated with wastewater from the PVC Unit are incorporated into Facility-wide Wastewater Emissions (EIQ# 234), which is included in the VCM Unit permit. The PVC Unit also maintains necessary utilities equipment to aid in process operations, such as cooling towers.

The PVC Unit operates under Title V Permit No. 1004-V0 issued on October 24, 2001. A timely and complete renewal application for the PVC Unit was submitted to the Louisiana Department of Environmental Quality (LDEQ) on April 19, 2006. The April 2006 application also incorporated a proposed modernization project.

- modification of the existing reactors and ancillary equipment
- construction and installation of two new reactors;
- a slurry stripping column;
- a new PVC dryer;
- two chillers;
- ancillary equipment
- replacement of the existing PT-103 tank (Source ID T-103) with a larger tank
- addition of several insignificant activity tanks, and
- equipment associated with an automatic catalyst charging system

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On May 30, 2007, FPC submitted a response to LDEQ's May 22, 2007 request for additional information. In the May 2007 update to the PVC Unit permit renewal application, FPC-LA decided not to construct the following equipment which was approved in previous permitting actions:

- four proposed loading silos (Source ID 214, 226, 227, 228)
- proposed Slurry Tank, Source ID T-225H

During the technical review of the Title V renewal application, the LDEQ requested additional information via a letter dated June 4, 2007, from FPC-LA for a contemporaneous netting demonstration due to the close timing of construction of the PVC Unit modernization, installation of the Utilities Unit Package Boilers B1/B2 (approved in Permit No. 2915-V0) and the Vinyl Chloride Monomer (VCM) Unit modernization project (approved in Title V Permit No. 0840-00002-V0), as detailed below:

Utilities Unit

The Utilities Unit modification covered under Title V Permit No. 2915-V0, covered installation and operation of two new package boilers B1 and B2 for enhanced steam production on site.

FPC VCM Modernization Project

FPC Vinyl Chloride Monomer (VCM) Unit modernization project involved the permanent shutdown of the VCM 1 and CCN Units and re-designation of the VCM 2 Unit as the VCM Unit.

In the VCM Unit, VCM is produced from 1,2-dichloroethane (EDC) and chlorine. EDC is fed to furnaces where it is converted to VCM and Hydrochloric acid (HCl). A scries of columns, heat exchangers, and vessels, interconnected by piping and ancillary transfer equipment, are used to purify the VCM to required specifications for use as a produced feedstock. Several by-products, such as HCl and unreacted EDC, are recycled for reuse in the process. Product VCM is stored for subsequent transfer to the PVC Unit or may otherwise be shipped via rail cars.

Feedstocks and finished products are stored in fixed roof tanks and spheres. Raw materials may be received via barge, truck, and rail cars. Rail cars and tank trucks are used to deliver finished products to customers from the facility. Fugitive emissions from piping components and transfer equipment in the VCM Unit, as well as facility-wide wastewater emissions, are included as part of this process.

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The VCM Unit also maintains necessary utilities equipment to aid in process operations, such as cooling towers and control and recovery devices. Incinerators at the FPC Baton Rouge Facility receive vent streams from reactors, columns, tanks, and vents from decontamination of equipment in the VCM Unit and other parts of the facility. The VCM modernization project comprised the construction and installation of technologically advanced equipment, including:

- A new reactor train;
- Columns:
- · A new furnace;
- Two new cooling tower cells;
- A new incinerator; and
- Ancillary equipment such as piping and upgrades to its distributed control system.

The above proposed modifications from all three units were reviewed in accordance with NSR requirements. The net emissions increases of sulfur dioxide (SO₂), carbon monoxide (CO), and nitrogen oxides (NO_x) from the proposed PVC Unit modernization project will be below the respective Nonattainment New Source Review (NNSR)/PSD thresholds; therefore, no further PSD review is required for these pollutants.

The net emissions increases of volatile organic compounds (VOC) will be above the NNSR threshold. FPC-LA VOC emission credits were used to offset project-related emissions increases. These emission offsets include the PVC methanol removal project in 1995, elimination of the marine/tank car loading project in 2002, and 3.07 credits remaining from the shutdown of VCM1 Unit in 2005.

The net increase in PM/PM₁₀ emissions for the PVC Unit modernization project is greater than the PSD significance threshold for PM/PM₁₀; therefore, this PSD permit addresses PM/PM₁₀ emissions.

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Estimated emissions, in tons per year, are as follows:

	Baseline	Projected Actual	Contemporaneous	Net Emissions	PSĎ	Review
Pollutant Pollutant	Actual_Emissions	Emissions (PTE)	<u>Changes</u>	<u>Increase</u>	de minimis	<u>required?</u>
PM	58.86	86.08	9.29	36.53	25 [.]	Y
PM_{10}	54.81	81.60	9.29	36.09	15¦	. Y
SO ₂	0.06	0.57	-	0.51	40'	-
NO_X	25.51	59.23	37.78	-4 .06	40,	-
CO	0.59	34.44	-	33.85	100	-
VOC	26.05	88.96	4.04	66.95	40¹	(NNSR) Y

¹Per LAC 33:III.509.L3, PSD requirements do not apply to nonattainment pollutants; Nonattainment New Source Review (NNSR) is applicable.

IV. SOURCE IMPACT ANALYSIS

A proposed net increase in the emission rate of a regulated pollutant above de minimis levels for new major or modified major stationary sources requires review under Prevention of Significant Deterioration regulations, 40 CFR 52.21. PSD review entails the following analyses:

- A. A determination of the Best Available Control Technology (BACT);
- B. An analysis of the existing air quality and a determination of whether or not preconstruction or postconstruction monitoring will be required;
- C. An analysis of the source's impact on total air quality to ensure compliance with the National Ambient Air Quality Standards (NAAQS);
- D. An analysis of the PSD increment consumption;
- E. An analysis of the source related growth impacts;
- F. An analysis of source related growth impacts on soils, vegetation, and visibility;
- G. A Class I Area impact analysis; and
- H. An analysis of the impact of toxic compound emissions.

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A. BEST AVAILABLE CONTROL TECHNOLOGY.

Under current PSD regulations, an analysis of "top down" BACT is required for the control of each regulated pollutant emitted from a modified major stationary in excess of the specified significant emission rates. The top down approach to the BACT process involves determining the most stringent control technique available for a similar or identical source. If it can be shown that this level of control is infeasible based on technical, environmental, energy, and/or cost considerations, then it is rejected and the next most stringent level of control is determined and similarly evaluated. This process continues until a control level is arrived at which cannot be eliminated for any technical, environmental, or economic reason. A technically feasible control strategy is one that has been demonstrated to function efficiently on identical or similar processes. Additionally, BACT shall not result in emissions of any pollutant which would exceed any applicable standard under 40 CFR Parts 60 and 61.

For this project, BACT analyses are required for PM₁₀ emissions from the PVC Unit modernization project. Where PM₁₀ is addressed in the BACT analysis, it is assumed that particulate matter (PM) is also being considered. The following sources are included in this BACT Analysis:

EQT/Source ID	Source Description
230D	VCM Unit Furnace D
231A/B/C	Incinerators A, B, C
232	VCM Unit Cooling Towers
257	PVC Unit Process Train - Dryers (178A-F, 206, 213,
İ	and 256)
257	PVC Unit Process Train – Material Handling Emissions
	(Fugitives 258A/B)

BACT analyses for PM/PM10

Control techniques for PM/PM₁₀ include fabric filters/baghouses, wet scrubbers, mist eliminators, good combustion practices and use of clean burning fuels.

In the fabric filter or baghouse, particle-laden gas passes through the filter bags, retaining particles on the filters. The filters are periodically cleaned via shaking, reverse airflow, or pulse jet cleaning. During cleaning, particles are deposited in a hopper for subsequent disposal. Fabric filters are used for medium and low gas flow streams with high particulate concentrations.

PM/PM₁₀ can be removed from a vent stream using a wet scrubber. Vent gas usually flows countercurrent with water, which removes particulate from the gas. Particulates are then separated

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from water and then disposed. Depending on the design, cyclones, electrostatic precipitators (ESPs), fabric filters, and wet scrubbers can achieve similar removal efficiencies.

Particulate emissions from the boilers and cracking furnaces are very fine particulates at very low concentration, even lower than the guarantee of some control devices. Using cyclones, electrostatic precipitators (ESP), fabric filters, and wet scrubbers is impractical! Good combustion practices and use of clean burning gaseous fuels have been determined as BACT for particulates emissions from boilers and cracking furnaces.

Wet cooling towers provide direct contact between cooling water and air. A small amount of water will be entrained and carried over with exit air from the towers. Suspended solids and dissolved materials in the entrained water are emitted as particulates. Because cooling towers require large surface areas and high air flow rates to transfer heat, an add-on air pollution control device would be infeasible. The cooling towers will be designed with integrated drift eliminators to minimize drift loss. This is determined as BACT for particulate emissions from the cooling towers.

Vents from PVC dryers are saturated with water vapor. Particulates will quickly plug the fabric filters and ESPs. A scrubber was determined as BACT for particulate emissions from the PVC dryers.

The following lists the techniques and emissions limits that meet BACT for particulates:

VCM Unit Furnace (Source ID 230D)

In the VCM Unit, 1,2-dichloroethane (EDC) is fed to cracking furnaces where it is converted to VCM and hydrochloric acid (HCl) using natural gas as fuel. The VCM Unit Furnace (Source ID 230D) is a proposed new source permitted in Title V Permit No. 0840-00002-V0. EPA's RACT/BACT/LAER Clearinghouse (RBLC) was reviewed to obtain a list of available control technologies for permitted furnaces.

Good combustion practices and use of clean burning fuels represent the best available method of controlling PM₁₀ emissions from furnaces. Since this method of controlling PM₁₀ emissions is feasible based on review of technical, environmental, energy, and/or cost considerations, good combustion practices and use of clean burning fuels (natural gas) is determined as BACT for the VCM Unit Furnace (Source ID 230D).

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The permitted PM₁₀ emissions rate for the VCM Unit Furnace (Source ID 230D) is as follows:

Pollutant	Emission Limit
PM ₁₀	0.08 lb/MMBTU

Incinerators A, B, C (Source ID 231A/B/C)

At the FPC Baton Rouge Facility, the online incinerators receive vent streams from the VCM Unit reactors, columns, tanks, and decontamination of equipment as authorized via Title V Permit No. 0840-00002-V0. Vent streams from the PVC Unit to the incinerators include noncondensable gases from the PVC reactors. The incinerator that is not receiving a vent stream is placed on hot standby and uses natural gas as fuel. No additional control technologies for permitted gaseous incinerators were obtained through the RBLC review. Good combustion practices for Incinerators A, B, and C (Source ID 231A/B/C) is determined as BACT.

The permitted PM₁₀ emissions rate for Incinerators A, B, and C (Source ID 231A/B/C) is as follows:

Incinerators	Emission Limit PM ₁₀
Source ID	(lb/hr)
231A	1.53
231B	1.53
231C	1.53

VCM Unit Cooling Towers (Source IDs 1-04 and 232)

PM₁₀ emissions from cooling towers are the result of solids becoming entrapped in the water droplets that drift from the cooling towers. EPA's RBLC was reviewed to attain a list of available control technologies for permitted cooling towers.

Good design, maintenance, and use of mist eliminators represent the best available method of controlling PM₁₀ emissions from cooling towers. Since this method of controlling PM₁₀ emissions is feasible based on review of technical, environmental, energy, and/or cost considerations, good design, maintenance and use of drift eliminators is determined as BACT for the VCM Unit Cooling Tower (Source ID 232) is determined as BACT.

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The permitted PM₁₀ emissions rate for the VCM Unit Cooling Towers (Source ID 232) is as follows:

	Emission Limit
Cooling Tower	PM ₁₀
Source ID	(lb/M gal)
232	0.0006

PVC Unit Process Train (Source ID 257)- Dryers (Source ID(s) 178A-F, 206, 213, and 256)

Stripped PVC slurry from the slurry stripping columns is pumped through heat exchangers to dryer feed holding tanks and centrifuges, where the slurry is dewatered and the PVC wet cake is produced. The PVC wet cake is dried in either a cyclone or fluidized bed dryer. Air vented from the dryers is passed through a water scrubber and PVC resin is screened by sieves and pneumatically conveyed to silos.

The FPC PVC Unit consists of 8 existing dryers (Source ID 178A, 178B, 178C, 178D, 178E, 178F, 206 and 213). As part of the PVC Unit modernization project, FPC proposes to construct an additional dryer (Source ID 256). In the PVC Unit Title V permit renewal application, FPC included the calculated emissions for the PVC dryers as part of the PVC Unit Process Train (Source ID 257). The PVC Unit Process Train includes PTE emissions from sources downstream of the PVC Unit stripping columns, including the PVC Unit dryers, loading silos, storage silos, and material handling fugitive emissions. The potential emissions for sources downstream of the slurry stripping columns were permitted as part of the PVC Unit Process Train in order for FPC to more accurately reflect the sources of the emissions. The most representative manner of accounting for the source of the emissions is to include the maximum total emissions for the train in an emissions cap, not as individual sources.

EPA's RBLC was reviewed to attain a list of available control technologies for permitted PVC dryers. Multicyclones followed by a scrubber represents the best available method of controlling PM₁₀ emissions from PVC dryers. Since this method of controlling PM₁₀ emissions is feasible based on review of technical, environmental, energy, and/or cost considerations, control of the PVC dryers with multicyclones and scrubbers is determined as BACT for the PVC Dryers.

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The proposed PM₁₀ emissions rate for the PVC Unit Process Train (Source ID 257) - Dryers is as follows:

Individual Dryer Source ID	Emission Limit PM ₁₀ (gr/dscf)
178A – PVC Dryer A	0.004
178B – PVC Dryer B	0.004
178C – PVC Dryer C	0.004
178D – PVC Dryer D	0.004
178E – PVC Dryer E	0.004
178F – PVC Dryer F	0.004
206 – Waste PVC Dryer	0.02
213 – PVC Dryer	0!004
256 – PVC Dryer	0!004

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PVC Unit Process Train (Source ID 257)- Material Handling Emissions (Source ID 258)

Material Handling Emissions (Source 1D 258) include fugitive particulate emissions from low-grade PVC and airborne particulate emissions during PVC loading. This source consists of fugitive emissions created during the production process and product loading.

In the PVC Unit Title V permit renewal application, FPC included the calculated Material Handling Emissions as part of the PVC Unit Process Train (Source ID 257). The PVC Unit Process Train includes emissions from sources downstream of the PVC Unit stripping columns, including the PVC Unit dryers, loading silos, storage silos, and material handling fugitive emissions. The potential emissions for sources downstream of the slurry stripping columns were permitted as part of the PVC Unit Process Train in order for FPC to more accurately reflect the sources of the emissions. The most representative manner of accounting for the source of the emissions is to include the maximum total emissions for the train in an emissions cap, not as individual sources.

EPA's RBLC was reviewed to obtain a list of available control technologies for permitted material handling emissions. Material handling emissions include fugitive emissions from product loading. At FPC-LA, PVC is loaded from silos into railcars and trucks. Each loading silo vent in the FPC-LA PVC Unit is controlled with a bag or cartridge filter dust collector operating at 99.99 percent particulate removal efficiencies or greater. Consistent with RBCL BACT determinations for similar processes, controlling PM/PM₁₀ emissions using a baghouse on loading silos is a feasible method of control for material handling emissions.

PVC loading operations are designed as outdoor operations; however, the railcar loading operations are conducted in a partially enclosed area. During loading, the railcar is surrounded by two walls and a roof to prevent transport of potential fugitive particulate matter to the surrounding air. Modifying loading operations to completely enclose loading areas would not be an economically feasible option. Additionally, covering of transport vehicles is not necessary since the railcars and trucks that store PVC are enclosed vehicles that are designed to receive product from loading silos with minimal particulate emissions.

Loading is accomplished through enclosed hoses and dust from connect/disconnect operations are kept to a minimum. Although no control technologies were found in the RBLC for fugitive PM/PM₁₀ emissions from production areas, FPC-LA institutes good housekeeping practices as a means to reduce overall production losses and control production-related fugitive PM/PM₁₀ emissions throughout the PVC Unit production area and loading operations.

PRELIMINARY-DETERMINATION SUMMARY

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The following methods of controlling PM/PM₁₀ emissions for Material Handling Fugitive Emissions (Source ID 258) are feasible based on review of technical, environmental, energy, and/or cost considerations and is determined as BACT:

- Bag or cartridge filter dust collectors on the loading silos with at least a 99.99 percent removal efficiency.
- Good housekeeping practices in PVC Unit production area and loading operations
- Wet suppression/water wash down for loading operations

The proposed PM₁₀ emissions rate for Material Handling Fugitive Emissions (Source ID 258) is as follows:

Pollutant	Emission Limit- Production (Silos 180-198)	Emission Limit – Loading (Railcar/Truck Fugitives)
PM ₁₀	0.09 lb/ton	0.01 lb/ton

B. ANALYSIS OF EXISTING AIR QUALITY

Prevention of Significant Deterioration regulations require an analysis of existing air quality for those pollutants to be emitted in significant amounts from a proposed major modification. PM₁₀ is the pollutant of concern in this case. Preliminary screening indicates that preconstruction PM₁₀ monitoring for this project is 9.70 µg/m³ which is below the preconstruction monitoring threshold of 10 µg/m³ on a 24-hour average, but above the monitoring significance level (level of significant impact) of 5 µg/m³. An annual average preconstruction monitoring threshold does not exist, however, preliminary screening indicates that preconstruction PM₁₀ monitoring for this project is 1.43 µg/m³ which exceeds the monitoring significance level of 1 µg/m³. As a result, preconstruction modeling would be required, however, due to the proximity of the project to an existing monitoring station, LDEQ has determined that the existing monitoring station and meteorological factors would be representative of existing air quality conditions at the facility, therefore no further preconstruction monitoring is required. Refined modeling and incremental analysis is required. Detailed air quality analyses for the facility is summarized as shown in Table II.

C. NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) ANALYSIS

Refined NAAQS modeling is required for PM₁₀. The refined 24 hour and annual averaging periods for background and maximum modeled concentration resulted in 136.1 µg/m³ and 45.4 µg/m³, respectively which is below the NAAQS averaging periods of 150 µg/m³ and 50 µg/m³ for PM₁₀. As such, as shown in Table II, PM₁₀ emissions will not cause or contribute to an exceedance of the NAAOS.

.PRELIMINARY.DETERMINATION.SUMMARY.

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D. PSD INCREMENT ANALYSIS

PSD increment modeling was required for PM₁₀ and the 24-hour and annual averaging periods indicated concentrations of 3.3 $\mu g/m^3$ and 0 $\mu g/m^3$, respectively. As shown below in Table II, the modeled PM₁₀ emissions will not result in consumption of the PSD increment in excess of allowable Class II limits.

E. SOURCE RELATED GROWTH IMPACTS

Operation of this facility is not expected to have any significant effect on residential growth or industrial/commercial development in the area of the facility. No significant net change in employment, population, or housing will be associated with the project. As a result, there will not be any significant increases in pollutant emissions indirectly associated with FPC-LA's proposal. Secondary growth effects will include temporary construction related jobs but no new permanent jobs.

F. SOILS, VEGETATION, AND VISIBILITY IMPACTS

There will be no significant impact on area soils, vegetation, or visibility.

G. CLASS I AREA IMPACTS

Louisiana's Breton Wildlife Refuge, the nearest Class I area, is over 250 kilometers (155 miles) from the site, precluding any significant impact.

H. TOXIC EMISSIONS IMPACT

The selection of control technology based on the BACT analysis included consideration of control of toxic emissions.

V. CONCLUSION

The Air Permits Division has made a preliminary determination to approve the construction of the PVC modernization project at the Formosa Plastics Corp Louisiana - Baton Rouge Plant near Baton Rouge, in East Baton Rouge Parish, Louisiana, subject to the attached specific and general conditions. In the event of a discrepancy in the provisions found in the application and those in this Preliminary Determination Summary, the Preliminary Determination Summary shall prevail.

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1. The permittee is authorized to operate in conformity with the specifications submitted to the Louisiana Department of Environmental Quality (LDEQ) as analyzed in LDEQ's document entitled "Preliminary Determination Summary" dated April 7, 2008. Specifications submitted are contained in the Emission Inventory Questionnaire dated April 20, 2006 and supplemented May 30, 2007, along with the PSD application dated July 16, 2007 and supplemented January 14 and April 7, 2008.

MAXIMUM ALLOWABLE EMISSIONS RATES

ID No.	Description		PM_{10}^{a}	Emission	ns CAP ^a
				lb/hr	TPY
EQT82	VCM Unit Furnace D	lb/hr	0.84		GRP17
230D	<u> </u>	TPY	a		8.72
EQT83	VCM-Incinerator A	lb/hr	17.03		
231A		TPY	a		
EQT84	VCM-Incinerator B	lb/hr	17.03		
231B		TPY	, a		
EQT85	VCM-Incinerator C	lb/hr	17.03		GRP18
231C		TPY	· a	,	15.67
EQT86	VCM Unit Cooling To	wers lb/hr	6.94		
232	;	TPY	22.11		
EQT11	PVC Dryer A	· lb/hr	1.89		
178A		TPY	a		•
EQT12	PVC Dryer B	lb/hr	1.89		
178B	*	TPY	, a	•	
EQT13	PVC Dryer C	lb/hr	1.89	1	
178C		TPY	а		
EQT14	PVC Dryer D	lb/hr	1.89		
178D	:	TPY	a		
EQT15	PVC Dryer E	lb/hr	2.21	•	
178E		TPY	a		
EQT16	PVC Dryer F	lb/hr	1.16		
178F		TPY	a		
EQT37	Waste PVC Dryer	lb/hr	0.04		
206		TPY	a		
EQT38	PVC Dryer	lb/hr	2.28	1	
213		TPY	a a		
EQT139	PVC Dryer	lb/hr	1.89		
256		TPY	a	,	
FUG3	PVC Material Handling	, lb/hr	6.30		
258	Fugitives 258A/258B	TPY	a		

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ID No.	Description		PM ₁₀	Emissio	ns CAP
				lb/hr	TPY
EQT18	Loading Silo A	lb/hr	1.02	i	
180		TPY	a	'	
EQT19	Loading Silo B	lb/hr	1.02	į	
181		TPY			
EQT20	Loading Silo C	lb/hr	1.02		
182		TPY	a	i	
EQT21	Loading Silo D	lb/hr	1.02	ļ	
183		TPY	<u>a</u>		
EQT22	Loading Silo E	lb/hr	1.02	:	
184	ļ.	TPY	a	!	
EQT23	Loading Silo F	lb/hr	1.02		
185	1. 1: 0:1 0	TPY	a	i :	
EQT24 186	Loading Silo G	lb/hr	1.02		
	II 41 - 4 001 - II	TPY	a	·	
EQT25 187	Loading Silo H	lb/hr	1.02	١.	
EQT26	Landing Cita I	TPY	1.02	j	
188	Loading Silo I	lb/hr TPY	1.02	1	
EQT27	Loading Silo J	lb/hr	1.02	:	
189		TPY	a	i	
EQT28	Loading Silo K	lb/hr	1.02		
190		TPY		1	
EQT29	Loading Silo L	lb/hr	1.02	i	
191		TPY	a	i.	
EQT30	Loading Silo M	lb/hr	1.02	!	
192		TPY	a	1	
EQT31	Storage Silo A	lb/hr	0.75		
193		TPY	a	,	
EQT32	Storage Silo B	ib/hr	0.75	!	
194		TPY	. a		
EQT33	Storage Silo C	lb/hr	0.75	:	
195	0.1.5	TPY	a	.	
EQT34 196	Storage Silo D	lb/hr TPY	0.75		
EQT35	Storage Silo E	lb/hr	0.75	,	
197	Storage Sho E	TPY		PCS1/ 257	
EQT36	Storage Silo F	lb/hr	0.75	39.21	GRP11
198	Olorage Ollo I	TPY	0.75 a	32.21	132.03

^aSource operates under an Emissions CAP

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		,
EIQ	PM/PM ₁₀ BACT	PM/PM ₁₀ BACT Limits
EQT82	Good combustion practices / gaseous fuel burning	0.08 lb/MM BTU
230D	<u> </u>	
EQT83	Good combustion practices / natural gas fired	1.53 lb/hr
231A		
EQT84	Good combustion practices / natural gas fired	1.53 lb/hr
231B		
EQT85	Good combustion practices / natural gas fired	1.53 lb/hr
231C	1	
EQT86	Good design, maintenance and drift eliminators	0.0006 lb/M gal
232		!
EQT11	Multicyclone/scrubber	0.004 gr/dscf
178A		-
EQT12	Multicyclone/scrubber :	0.004 gr/dscf
17 <u>8B</u>		
EQT13	Multicyclone/scrubber	0.004 gr/dscf
178C		1
EQT14	Multicyclone/scrubber	0.004 gr/dscf '
178D		
EQT15	Multicyclone/scrubber	0.004 gr/dscf
178E		
EQT16	Multicyclone/scrubber .	0.004 gr/dscf
178F		:
EQT37	Multicyclone/scrubber	0.02 gr/dscf
206		<u> </u>
EQT38	Multicyclone/scrubber	0.004 gr/dscf
213		
EQT139	Multicyclone/scrubber	0.004 gr/dscf
256		
FUG3	Bag or cartridge filter dust collectors on silos	0.09 lb/ton
258A	(Emission Points 180-198)	>99.99 percent removal
		efficiency
FUG3	Good housekeeping/	0.01 lb/ton
258B		0.01 10/10/1
	wet suppression/water wash down	1

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- 2. Permittee shall measure the charge to the reactors at the load cell on the charge pot, by level gauge on the charge pot, and by flow meter to the reactor.
- 3. The permittee shall strip the PVC slurry to 35 ppm by weight vinyl chloride or less on a reporting quarterly average.
- 4. The permittee shall not exceed a reactor opening loss of 4 x 10⁻⁶ lbs/lb of PVC produced.

- I. This permit is issued on the basis of the emissions reported in the application for approval of emissions and in no way guarantees that the design scheme presented will be capable of controlling the emissions to the type and quantities stated. Failure to install, properly operate and/or maintain all proposed control measures and/or equipment as specified in the application and supplemental information shall be considered a violation of the permit and LAC 33:III.501. If the emissions are determined to be greater than those allowed by the permit (e.g. during the shakedown period for new or modified equipment) or if proposed control measures and/or equipment are not installed or do not perform according to design efficiency, an application to modify the permit must be submitted. All terms and conditions of this permit shall remain in effect unless and until revised by the permitting authority.
- II. The permittee is subject to all applicable provisions of the Louisiana Air Quality Regulations. Violation of the terms and conditions of the permit constitutes a violation of these regulations.
- III. The Emission Rates for Criteria Pollutants, Emission Rates for TAP/HAP & Other Pollutants, and Specific Requirements sections or, where included, Emission Inventory Questionnaire sheets establish the emission limitations and are a part of the permit. Any operating limitations are noted in the Specific Requirements or, where included, Tables 2 and 3 of the permit. The synopsis is based on the application and Emission Inventory Questionnaire dated April 20, 2006, and supplemented May 30, 2007, along with the PSD application dated July 17, 2007 and supplemental information dated November 28, 2007, January 14 and April 7, 2008.
- IV. This permit shall become invalid, for the sources not constructed, if:
 - A. Construction is not commenced, or binding agreements or contractual obligations to undertake a program of construction of the project are not entered into, within two (2) years (18 months for PSD permits) after issuance of this permit, or;
 - B. If construction is discontinued for a period of two (2) years (18 months for PSD permits) or more.

The administrative authority may extend this time period upon a satisfactory showing that an extension is justified.

This provision does not apply to the time period between construction of the approved phases of a phased construction project. However, each phase must commence construction within two (2) years (18 months for PSD permits) of its projected and approved commencement date.

V. The permittee shall submit semiannual reports of progress outlining the status of construction, noting any design changes, modifications or alterations in the construction schedule which have or may have an effect on the emission rates or ambient air quality levels. These reports shall continue to be submitted until such time as construction is certified as being complete. Furthermore, for any significant change in the design, prior approval shall be obtained from the Office of Environmental Services, Air Permits Division.

- VI. The permittee shall notify the Department of Environmental Quality, Office of Environmental Services, Air Permits Division within ten (10) calendar days from the date that construction is certified as complete and the estimated date of start-up of operation. The appropriate Regional Office shall also be so notified within the same time frame.
- VII. Any emissions testing performed for purposes of demonstrating compliance with the limitations set forth in paragraph III shall be conducted in accordance with the methods described in the Specific Conditions and, where included, Tables 1, 2, 3, 4, and 5 of this permit. Any deviation from or modification of the methods used for testing shall have prior approval from the Office of Environmental Assessment, Air Quality Assessment Division.
- VIII. The emission testing described in paragraph VII above, or established in the specific conditions of this permit, shall be conducted within sixty (60) days after achieving normal production rate or after the end of the shakedown period, but in no event later than 180 days after initial start-up (or restart-up after modification). The Office of Environmental Assessment, Air Quality Assessment Division shall be notified at least (30) days prior to testing and shall be given the opportunity to conduct a pretest meeting and observe the emission testing. The test results shall be submitted to the Air Quality Assessment Division within sixty (60) days after the complete testing. As required by LAC 33:III.913, the permittee shall provide necessary sampling ports in stacks or ducts and such other safe and proper sampling and testing facilities for proper determination of the emission limits.
- IX. The permittee shall, within 180 days after start-up and shakedown of each project or unit, report to the Office of Environmental Compliance, Enforcement Division any significant difference in operating emission rates as compared to those limitations specified in paragraph III. This report shall also include, but not be limited to, malfunctions and upsets. A permit modification shall be submitted, if necessary, as required in Condition I.
- X. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of at least five (5) years.
- XI. If for any reason the permittee does not comply with, or will not be able to comply with, the emission limitations specified in this permit, the permittee shall provide the Office of Environmental Compliance, Enforcement Division with a written report as specified below.
 - A. A written report shall be submitted within 7 days of any emission in excess of permit requirements by an amount greater than the Reportable Quantity established for that pollutant in LAC 33.I.Chapter 39.
 - B. A written report shall be submitted within 7 days of the initial occurrence of any emission in excess of permit requirements, regardless of the amount, where such emission occurs over a period of seven days or longer.

- C. A written report shall be submitted quarterly to address all emission limitation exceedances not included in paragraphs A or B above. The schedule for submittal of quarterly reports shall be no later than the dates specified below for any emission limitation exceedances occurring during the corresponding specified calendar quarter:
 - 1. Report by June 30 to cover January through March
 - 2. Report by September 30 to cover April through June
 - 3. Report by December 31 to cover July through September
 - 4. Report by March 31 to cover October through December
- D. Each report submitted in accordance with this condition shall contain the following information:
 - 1. Description of noncomplying emission(s);
 - 2. Cause of noncompliance;
- 3. Anticipated time the noncompliance is expected to continue, or if corrected, the duration of the period of noncompliance;
- 4. Steps taken by the permittee to reduce and eliminate the noncomplying emissions; and
- 5. Steps taken by the permittee to prevent recurrences of the noncomplying emissions.
- E. Any written report submitted in advance of the timeframes specified above, in accordance with an applicable regulation, may serve to meet the reporting requirements of this condition provided all information specified above is included. For Part 70 sources, reports submitted in accordance with Part 70 General Condition R shall serve to meet the requirements of this condition provided all specified information is included. Reporting under this condition does not relieve the permittee from the reporting requirements of any applicable regulation, including LAC 33.I.Chapter 39, LAC 33.III.Chapter 9, and LAC 33.III.5107.
- XII. Permittee shall allow the authorized officers and employees of the Department of Environmental Quality, at all reasonable times and upon presentation of identification, to:
 - A. Enter upon the permittee's premises where regulated facilities are located, regulated activities are conducted or where records required under this permit are kept;
 - B. Have access to and copy any records that are required to be kept under the terms and conditions of this permit, the Louisiana Air Quality Regulations, or the Act;
 - C. Inspect any facilities, equipment (including monitoring methods and an operation and maintenance inspection), or operations regulated under this permit; and

- D. Sample or monitor, for the purpose of assuring compliance with this permit or as otherwise authorized by the Act or regulations adopted thereunder, any substances or parameters at any location.
- XIII. If samples are taken under Section XII.D. above, the officer or employee obtaining such samples shall give the owner, operator or agent in charge a receipt describing the sample obtained. If requested prior to leaving the premises, a portion of each sample equal in volume or weight to the portion retained shall be given to the owner, operator or agent in charge. If an analysis is made of such samples, a copy of the analysis shall be furnished promptly to the owner, operator or agency in charge.
- XIV. The permittee shall allow authorized officers and employees of the Department of Environmental Quality, upon presentation of identification, to enter upon the permittee's premises to investigate potential or alleged violations of the Act or the rules and regulations adopted thereunder. In such investigations, the permittee shall be notified at the time entrance is requested of the nature of the suspected violation. Inspections under this subsection shall be limited to the aspects of alleged violations. However, this shall not in any way preclude prosecution of all violations found.
- XV. The permittee shall comply with the reporting requirements specified under LAC 33:III.919 as well as notification requirements specified under LAC 33:III.927.
- XVI. In the event of any change in ownership of the source described in this permit, the permittee and the succeeding owner shall notify the Office of Environmental Services in accordance with LAC 33:I.Chapter 19.Facility Name and Ownership/Operator Changes Process.
- XVII. Very small emissions to the air resulting from routine operations, that are predictable, expected, periodic, and quantifiable and that are submitted by the permitted facility and approved by the Air Permits Division are considered authorized discharges. Approved activities are noted in the General Condition XVII Activities List of this permit. To be approved as an authorized discharge, these very small releases must:
 - 1. Generally be less than 5 TPY
 - 2. Be less than the minimum emission rate (MER)
 - 3. Be scheduled daily, weekly, monthly, etc., or
 - 4. Be necessary prior to plant startup or after shutdown [line or compressor pressuring/depressuring for example]

These releases are not included in the permit totals because they are small and will have an insignificant impact on air quality. This general condition does not authorize the maintenance of a nuisance, or a danger to public health and safety. The permitted facility must comply with all applicable requirements, including release reporting under LAC 33:1.3901.

XVIII. Provisions of this permit may be appealed in writing pursuant to La. R.S. 30:2024(A) within 30 days from receipt of the permit. Only those provisions specifically appealed will be

suspended by a request for hearing, unless the secretary or the assistant secretary elects to suspend other provisions as well. Construction cannot proceed except as specifically approved by the secretary or assistant secretary. A request for hearing must be sent to the following:

Attention: Office of the Secretary, Legal Services Division
La. Dept. of Environmental Quality
Post Office Box 4302
Baton Rouge, Louisiana 70821-4302

XIX. For Part 70 sources, certain Part 70 general conditions may duplicate or conflict with state general conditions. To the extent that any Part 70 conditions conflict with state general conditions, then the Part 70 general conditions control. To the extent that any Part 70 general conditions duplicate any state general conditions, then such state and Part 70 provisions will be enforced as if there is only one condition rather than two conditions.

TABLE I: BACT COST SUMMARY

Formosa Plastics Corp Louisiana - Baton Rouge Plant Agency Interest No.: 288 Formosa Plastics Corp Baton Rouge, East Baton Rouge Parish, Louisiana PSD-LA-546 (M2)

ıtrol A	Control Alternatives for PM ₁₀	Availability/ Feasibility	Negative Impacts (a)	Control Efficiency	Emissions Reduction (TPY)	Emissions Capital Cost Annualized Reduction (\$) Cost (TPY) (S)	Cost Effectiveness (\$/ton)	Notes
	NA							
						•.		
				•				
Notes:	a) Negative impacts: 1) economic, 2) environmental, 3) energy, 4) safety b) Technically infeasible, economic analysis was not performed	onmental, 3) ener is was not perforn	gy, 4) safety ned				•	
!								:

TABLE II: AIR QUALITY ANALYSIS SUMMARY

Formosa Plastics Corp Louisiana - Baton Rouge Plant Agency Interest No.: 288 Formosa Plastics Corp

Baton Rouge, East Baton Rouge Parish, Louisiana PSD-LA-546 (M2)

Pollutant	Averaging Period	Preliminary Screening Concentration	Level of Significant Impact	Significant Monitoring Concentration	Background	Maximum Modeled Concentration	Modeled + Background Concentration	NAAQS	Modeled PSD Increment Consumption	Modeled PSD Allowable Class Increment II PSD Consumption Increment
	_	(µg/m³)	(μg/m³)	(μg/m³)	(µg/m³)	(μg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)
PM10	24-hour	9.70	5	. 10	29.1	107	136.1	150	3.3	30
	Annual	1.43	1	-	27.9	17.5	45.4	50	.0	17